Project Sheet

Delta Marine Consultants
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Delta Marine Consultants is a trade name of BAM Infraconsult bv

Product Loading Jetty, Ichthys

INPEX Operations Australia Pty Ltd is the proponent for the construction and operation of hydrocarbon production and export facilities that are required for the development of the Ichthys gas field located off the northern coast of Western Australia. The gas will be transported through a subsea pipeline more than 800 kilometres to the onshore LNG processing plant that will be located at Blaydin Point near Darwin in the Northern Territory. As part of this development, extensive onshore facilities are required, including an access jetty that serve as a loading facility for Liquefied Natural Gas (LNG), Liquefied Petroleum Gas (LPG) and condensate products. JGC KBR Chiyoda Joint Venture, acting as main contractor for the onshore LNG facility, has awarded the subcontract for design and construct of the Jetty to BAM Clough JV.

Main Client
INPEX (operator)
JV JGC, KBR and Chiyodo (main contractor)

Client
JV BAM International and Clough

Type of Contract
Engineering, Procurement and Construction (EPC)

Completion
2013 (design)

Location
Darwin, Australia

Consultancy Fees
Category 5 (see page 2)

Construction Costs
225 Mio Euro

Scope
Design of a product loading jetty with LNG and combined LPG/Condensate berth

Services
Tender Design
Basic Design
Detailed Design
Site Engineering
PDA Pile Testing

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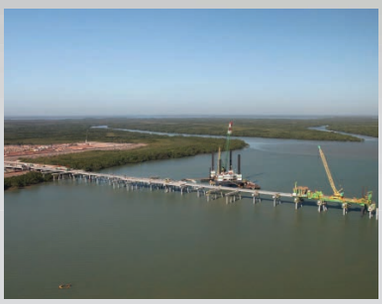
Product Loading Jetty, Ichthys



Project Description

The jetty structure is Y shaped, starts with an earth ramp and has an LNG and an LPG/Condensate off loading facility at both ends. From the earth ramp the approach trestle extends 300 m offshore towards the E&I (Electrical and Instrumentation) Platform, carrying both LNG and LPG/Condensate pipelines. The width of the concrete deck at this part of the trestle is almost 24 m. The purpose of this width is to install pipelines from the shore side by means of multi wheel loaders. The design, construct and installation of pipe racks is done by others.

From the E&I Platform, the trestle branches in a 14 m wide approach trestle extending 300 m offshore ending at a loading platform for LNG transfer. The other trestle branch is 16 m wide and extends 600 m offshore ending at a loading platform for LPG/Condensate transfer. The approach trestle includes strong points, extension loops for piping and a seawater intake platform and is made-up by 24 m spans. The approach trestle is constructed with tailor-made equipment called the Cantilever Bridge (CLB), being able to shift the work front forwards over the already constructed trestle part, without being dependent on water depth and wave conditions.

The E&I platform supports 2 buildings. The two loading platforms support transfer facilities for product and personnel transfer and are surrounded by breasting and mooring dolphins to provide a safe basis for the vessels. Navigation aids will serve as a safe access to both berths.

Role Delta Marine Consultants

DMC was contracted by BAM Clough JV as their civil marine designer for the Jetty and as such responsible for the design of the Jetty structure during tender, basic and detailed design. During construction also site engineering support is delivered as well as a geotechnical engineer conducting and interpreting PDA pile tests.

The scope of DMC comprises the civil marine design of:

- 1.3 km of Approach Trestle Structure (steel piles, concrete headstocks and pre-stressed concrete deck beams)
- Electrical and Instrumentation Platform (steel piles, steel concrete composite deck)
- LNG Loading Platform (steel jacket type)
- LPG/Condensate Loading Platform (steel jacket type)
- Mooring and Breasting Dolphins (steel jacket type) including fender system
- Catwalks
- Provisions for Waste Water Outfall
- Sea Water Intake support structure
- Navigation Aids

Consultancy Fees: 1: 50.000€ 2: 50 - 150.000€ 3: 150 - 300.000€ 4: 300 - 600.000€ 5: > 600.000€

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